

## Chemical Safety Data Sheet MSDS / SDS

## NITROFEN

Revision Date:2025-02-01 Revision Number:1

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

**Product identifier**

Product name : NITROFEN  
CBnumber : CB9103795  
CAS : 1836-75-5  
EINECS Number : 217-406-0  
Synonyms : NIP,nitrofen

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

**Company Identification**

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 400-158-6606

## SECTION 2: Hazards identification

**Classification of the substance or mixture**

Acute toxicity - Category 4, Oral  
Carcinogenicity, Category 1B  
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1  
Reproductive toxicity, Category 1B

**Label elements****Pictogram(s)**

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Signal word : Danger

**Hazard statement(s)**

H302 Harmful if swallowed  
H350 May cause cancer  
H360 May damage fertility or the unborn child  
H400 Very toxic to aquatic life

H410 Very toxic to aquatic life with long lasting effects

#### **Precautionary statement(s)**

P201 Obtain special instructions before use.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P405 Store locked up.

P501 Dispose of contents/container to.....

#### **Prevention**

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P203 Obtain, read and follow all safety instructions before use.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

P273 Avoid release to the environment.

#### **Response**

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

P318 IF exposed or concerned, get medical advice.

P391 Collect spillage.

#### **Storage**

P405 Store locked up.

#### **Disposal**

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

#### **Other hazards**

no data available

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## SECTION 3: Composition/information on ingredients

### **Substance**

Product name	: NITROFEN
Synonyms	: NIP,nitrofen
CAS	: 1836-75-5
EC number	: 217-406-0
MF	: C12H7Cl2NO3
MW	: 284.09

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## SECTION 4: First aid measures

### **Description of first aid measures**

### If inhaled

Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.

### Following skin contact

First rinse with plenty of water for at least 15 minutes, then remove contaminated clothes and rinse again. Refer for medical attention .

### Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

### Following ingestion

Rinse mouth. Rest. Refer for medical attention .

### Most important symptoms and effects, both acute and delayed

SYMPTOMS: Symptoms of exposure to this compound may include irritation of the skin and eyes. ACUTE/CHRONIC HAZARDS: This compound is toxic by ingestion. It may cause irritation of the skin and eyes. When heated to decomposition it emits toxic fumes of nitrogen oxides and chlorine. (NTP, 1992)

### Indication of any immediate medical attention and special treatment needed

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Aromatic hydrocarbons and related compounds

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## SECTION 5: Firefighting measures

### Extinguishing media

Fires involving this material can be controlled with a dry chemical, carbon dioxide or Halon extinguisher. (NTP, 1992)

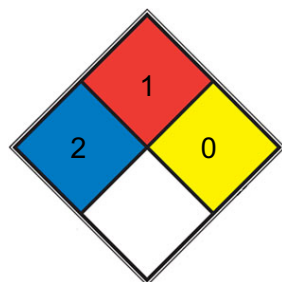
### Specific Hazards Arising from the Chemical

Flash point data for this chemical are not available; however, it is probably combustible. (NTP, 1992)

### Advice for firefighters

Use water spray, powder, foam, carbon dioxide.

### NFPA 704



■ HEALTH 2 Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g. [diethyl ether](#), ammonium phosphate, iodine)

■ FIRE 1 Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur. Includes some finely divided suspended solids that do not require heating before ignition can occur. Flash point

at or above 93.3 °C (200 °F). (e.g. [mineral oil](#), ammonia)

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REACT 0 Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, [N2](#))

SPEC.

HAZ.

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## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Sweep spilled substance into covered containers. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT let this chemical enter the environment. Personal protection: P3 filter respirator for toxic particles.

### Environmental precautions

Sweep spilled substance into covered containers. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT let this chemical enter the environment. Personal protection: P3 filter respirator for toxic particles.

### Methods and materials for containment and cleaning up

PRECAUTIONS FOR "CARCINOGENS": A high-efficiency particulate arrestor (HEPA) or charcoal filters can be used to minimize amt of carcinogen in exhausted air ventilated safety cabinets, lab hoods, glove boxes or animal rooms ... Filter housing that is designed so that used filters can be transferred into plastic bag without contaminating maintenance staff is avail commercially. Filters should be placed in plastic bags immediately after removal ... The plastic bag should be sealed immediately ... The sealed bag should be labelled properly ... Waste liquids ... should be placed or collected in proper containers for disposal. The lid should be secured & the bottles properly labelled. Once filled, bottles should be placed in plastic bag, so that outer surface ... is not contaminated ... The plastic bag should also be sealed & labelled. ... Broken glassware ... should be decontaminated by solvent extraction, by chemical destruction, or in specially designed incinerators. Chemical Carcinogens

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## SECTION 7: Handling and storage

### Precautions for safe handling

NO open flames. Closed system, dust explosion-proof electrical equipment and lighting. Prevent deposition of dust. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

### Conditions for safe storage, including any incompatibilities

Separated from food and feedstuffs. Well closed. PRECAUTIONS FOR "CARCINOGENS": Storage site should be as close as practical to lab in which carcinogens are to be used, so that only small quantities required for ... expt need to be carried. Carcinogens should be kept in only one section of cupboard, an explosion-proof refrigerator or freezer (depending on chemophysical properties ...) that bears appropriate label. An inventory ... should be kept, showing quantity of carcinogen & date it was acquired ... Facilities for dispensing ... should be contiguous to storage area. Chemical Carcinogens

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## SECTION 8: Exposure controls/personal protection

## Control parameters

### Occupational Exposure limit values

no data available

### Biological limit values

no data available

## Exposure controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

## Individual protection measures

### Eye/face protection

Wear safety spectacles or eye protection in combination with breathing protection if powder.

### Skin protection

Protective gloves. Protective clothing.

### Respiratory protection

Use local exhaust or breathing protection.

### Thermal hazards

no data available

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Physical state	Solid
Colour	Crystalline solid
Odour	no data available
Melting point/freezing point	337°C(lit.)
Boiling point or initial boiling point and boiling range	180°C/0.9mmHg(lit.)
Flammability	Combustible.
Lower and upper explosion limit/flammability limit	no data available
Flash point	85°C(lit.)
Auto-ignition temperature	>400°C
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	less than 1 mg/mL at 70° F (NTP, 1992)
Partition coefficient n-octanol/water	log Kow = 4.64
Vapour pressure	4.55E-05mmHg at 25°C
Density and/or relative density	1.3
Relative vapour density	no data available

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Particle characteristics	no data available
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## SECTION 10: Stability and reactivity

### Reactivity

On combustion, forms toxic fumes.

### Chemical stability

Darkens under exposure to light

### Possibility of hazardous reactions

FLAMMABLE Dust explosion possible if in powder or granular form, mixed with air. NITROFEN is a nitrated and halogenated ether derivative.

### Conditions to avoid

no data available

### Incompatible materials

no data available

### Hazardous decomposition products

When heated to decomp it emits very toxic fumes of hydrogen chloride and nitrogen oxides.

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 Rabbit oral 780 mg/kg bw
- Inhalation: LC50 Rat inhalation 205 mg/L /1 hr
- Dermal: no data available

### Skin corrosion/irritation

no data available

### Serious eye damage/irritation

no data available

### Respiratory or skin sensitization

no data available

### Germ cell mutagenicity

no data available

### Carcinogenicity

No data are available in humans. Sufficient evidence of carcinogenicity in animals. OVERALL EVALUATION: Group 2B: The agent is possibly

carcinogenic to humans.

### **Reproductive toxicity**

no data available

### **STOT-single exposure**

The substance is irritating to the skin and respiratory tract. The substance may cause effects on the central nervous system.

### **STOT-repeated exposure**

Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the liver. This substance is possibly carcinogenic to humans. Animal tests show that this substance possibly causes malformations in human babies.

### **Aspiration hazard**

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly on spraying or when dispersed, especially if powdered.

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## **SECTION 12: Ecological information**

### **Toxicity**

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: EC50; Species: *Scenedesmus subspicatus* (Green Algae); Conditions: freshwater, static; Concentration: 1800 ug/L for 49-79 min, population decrease /100% purity formulation

Toxicity to microorganisms: no data available

### **Persistence and degradability**

Nitrofen degraded slowly under aerobic and anaerobic conditions with a sewage inoculum, but only in the presence of an external source of carbon and energy; after 88 days of incubation 6% and 4% degradation occurred under aerobic and anaerobic conditions, respectively(1). Four unspecified products were formed in the aerobic experiment, all more hydrophilic than the parent compound(1). The corresponding amine was identified as a biodegradation product of nitrofen(2). Nitrofen, present at 100 mg/L, reached 2% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test(3). Nitrofen was degraded slowly by soil microorganisms during the first week and persisted more than 4 weeks when it was the sole source of carbon(4). When other sources of carbon were added, degradation occurred in 3 weeks(4). After 16 weeks of incubation in laboratory experiments, 15 and 38% of the initial concentration (10 ppm) of nitrofen remained in sandy loam (0.7% organic matter, pH 7.0) and muck (36.7% organic matter, pH 7.0) soils, respectively, 94% and 82% nitrofen remained in the same soils that were sterilized(5). Nitrofen slowly but completely biodegraded to carbon dioxide in typical soils likely proceeding through diphenyl ether cleavage(6). In a river die-away test using Asahi River (Japan) water, 1% of the nitrofen remained after 50 days incubation at 20 deg C(7).

### **Bioaccumulative potential**

The BCF of nitrofen in orange-red killifish (*Oryzias latipes*), exposed for 10 weeks to 50 and 5.0 ug/L was 2900-5370 and 2720-4220, respectively(1). Nitrofen bioconcentrated in algae, snails, mosquito larvae, and fish in a 3-day model aquatic ecosystem; <20% of the herbicide was found as metabolites(2). A 33-day model terrestrial-aquatic ecosystem in which 1.29 kg/ha of nitrofen was injected into paddy sand containing rice seedlings(2). The BCFs for fish, mosquito larvae, snails, and algae in this experiment were 1550, 3190, 2770, and 405, respectively(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is very

high(SRC), provided the compound is not metabolized by the organism(SRC).

### **Mobility in soil**

Using a structure estimation method based on molecular connectivity indices(1), the Koc of nitrofen can be estimated to be 7,800(SRC). According to a classification scheme(2), this estimated Koc value suggests that nitrofen is expected to be immobile in soil(SRC). Results of soil thin layer chromatography tests showed that nitrofen is immobile in soil(3). Similarly results were obtained in column leaching studies with both Plainfield sand and muck soils and indicate that leaching of nitrofen from arable soils will be negligible(4). In field experiments in sandy loam, heavy clay, and silty clay soils, <5% of the applied nitrofen was recovered from the 5-10 cm soil level, indicating that minimal leaching had occurred(5).

### **Other adverse effects**

no data available

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## **SECTION 13: Disposal considerations**

### **Disposal methods**

#### **Product**

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### **Contaminated packaging**

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

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## **SECTION 14: Transport information**

### **UN Number**

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### **UN Proper Shipping Name**

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### **Transport hazard class(es)**

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### **Packing group, if applicable**

ADR/RID: Not dangerous goods. (For reference only, please check.)



IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### **Environmental hazards**

ADR/RID: Yes

IMDG: Yes

IATA: Yes

### **Special precautions for user**

no data available

### **Transport in bulk according to IMO instruments**

no data available

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## SECTION 15: Regulatory information

### **Safety, health and environmental regulations specific for the product in question**

#### **European Inventory of Existing Commercial Chemical Substances (EINECS)**

Listed.

#### **EC Inventory**

Listed.

#### **United States Toxic Substances Control Act (TSCA) Inventory**

Listed.

#### **China Catalog of Hazardous chemicals 2015**

Not Listed.

#### **New Zealand Inventory of Chemicals (NZIoC)**

Listed.

#### **PICCS**

Not Listed.

#### **Vietnam National Chemical Inventory**

Listed.

#### **IECSC**

Listed.

#### **Korea Existing Chemicals List (KECL)**

Listed.

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## SECTION 16: Other information

### **Abbreviations and acronyms**

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

## References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pagelD=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pagelD=0&request_locale=en)

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

## Other Information

If the substance is formulated with solvent(s) also consult the card(s) (ICSC) of the solvent(s). Carrier solvents used in commercial formulations may change physical and toxicological properties. Do NOT take working clothes home.

### Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.